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ABSTRACT

College Edouard-Monpetit (CEM) is the largest French-language college in Quebec. Its student body consists of 4,000 full-time students in pre-university programs, 3,000 full-time students in technical programs, and 11,500 part-time students in continuing education. CEM has two main campuses, offering four pre-university and 15 technical programs, a Business Resource Center, and a Computer Aided Design/Computer Aided Manufacturing Training Center. A true community college, CEM provides a variety of services to the surrounding region, including a sports center, library, dental hygiene and eye care clinics, and a center for performing arts. The college has been active in cooperative training and consulting activities with various international organizations and institutions in such countries as Cameroon, Senegal, India, China, and South East Asia. The continuing education department of the Longueuil Campus offers both credit and non-credit pre-university and technical programs. Three of the colleges most recent projects are: (1) involvement in the Canadian Network for Total Quality, designed to help Canadian business become more competitive on international markets; (2) a competency-based training program for Bell Canada's network managers; and (3) a province-wide training network of 13 colleges which offers microcomputer services and training. The National Institute of Aeronautics (NIA) is CEM's second main campus, and one of 12 Canadian institutes of technology that offer training programs in aerospace and aeronautics. NIA offers three full programs in aviation technology: Avionics, Aircraft Maintenance, and Aircraft Construction. NIA's continuing education department offers both credit and non-credit aeronautics programs, and services such as consulting and quality accreditation. An introductory section covers the state of the Canadian economy, provides an overview of Quebec's educational system, describes the province's college network and its most distinctive features, and explains the organization of college-level education. (MAB)

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"CUSTOMIZED TRAINING FOR BUSINESS AND INDUSTRY: THE QUÉBEC COLLEGE EXPERIENCE"

NOTES FOR AN ADDRESS BY

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TO

the League for Innovations in Community Colleges

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Notes for Mr. Charles S. Bourgeois' presentation

I would like to express my thanks to the members of your organizing committee for the opportunity to talk to you about the Québec college experience. I should note at the outset, although I am sure that the remnants of my New England accent have already given me away, that, while I am fluently bilingual and have resided in Québec for the past seventeen years, I was born and educated in the United States. My cultural background is not without some relevance in this cross-cultural presentation that my colleague and I are about to make and it certainly helps to explain my perspective on the issues at hand.

At the outset, I would like to say a few words about the Canadian economy. As many of you are now aware, Canada, and this is true of all G-7 nations, is in the process of pulling out of a very deep and lengthy recession which has not only slowed economic growth, but brought us to reflect on the enormity of our national debt, on the role and size of government, and on the way we do business. While we may not have come up with the answers to the first two questions, there is no doubt that Canadian industry has turned increasingly to high technology, to new management approaches such as JIT and Total Quality Commitment, and to the creation of strategic alliances in an effort to meet the demands of a very challenging marketplace.

In addition to the economic crisis, Canada is caught up in the global changes in trade patterns. The GATT talks and the recent Free Trade Agreement (FTA) between Canada and the USA, and it's projected extension to Mexico through NAFTA, are among the most hotly debated issues in Canada. The FTA, for instance, which drew very little press coverage in the United States, was the focal point of the 1988 Canadian federal election and its adoption has led more and more companies to search out customers abroad and to change product lines and methods of production in order to become competitive internationally.

In the light of these central variables affecting the economy, indeed, according to some, the very fiber of our society, Canada's community colleges have explored

ways in which they can better meet the changing educational needs of the emerging economy. They have done this in two ways in particular. First, they have demonstrated the capacity and the will to form partnerships in cooperative undertakings with significant actors from within as well as from without their fields of competence in order to better approach global and local needs. Second, they have shown their willingness to be innovative and to continuously improve the quality of their curricula and their educational practices in order to bring them up to world standards.

Today, my colleague and I would like to illustrate how the Québec colleges have evolved over the years and how, citing the example of our own institution, they have adapted themselves to the needs of the present economic situation. Québec colleges do not have all the answers, but a serious attempt is being made so that they can become more responsive to current needs and we would like to share some of this with you.

Québec's Education System

In the early 1960's, after many years of religious and political conservatism, the Province of Québec embarked on what would later be known as the Quiet Revolution. Important changes were made progressively to the province's political, economic, health, social, and cultural structures. Nowhere were these changes as significant as in the province's education system. The provincial Department of Education was brought into existence in 1960 and with it came a major reform of Québec's public schools highlighted, in 1967, by the creation of a network of public colleges or "cégeps" (*collèges d'enseignement général et professionnel*). Enrollment went from 35,000 students in 1968 to more than 120,000 in 1978, a threefold increase in a decade. In that same ten-year period, the proportion of female students rose from 33% to 50% of the total student population. Thus, in a relatively short time, Québec succeeded in upgrading its archaic post-secondary education system.

This system differs slightly from the one in use in the United-States and in other parts of Canada. Elementary and secondary education is a year shorter than in the rest of North America. It is followed by a mandatory two-year college program for students going on to university and an optional three-year technical training course for those moving on to the work place.

Québec's College Network

Québec's college network is unique. With a total of 82 institutions, it accounts for 43% of all community colleges in Canada. 47 of these institutions are public colleges, 25 are subsidized private institutions, and 10 are specialized institutes providing training in such fields as music, agriculture, and tourism. The uniqueness of the formula stems from the fact that all students must attend college before entering university. Most college level institutions offer both pre-university programs and a certain number of technical programs. Students from both sectors follow a common group of courses in language, humanities, and physical education. Although initially viewed as two separate paths, the flexible nature of their boundaries and the common physical environment make it relatively easy for a student to start in one sector (pre-university or technical) and later to transfer to the other sector because of personal or career choices. Also, more and more technical program graduates are pursuing their education in related university level professional programs rather than immediately entering the work force.

Because of its design and the strong relations that it maintains with high-school and university education, the college structure is a key element in Québec's post-secondary education system. Because of the quality of its technical programs, the college structure is also a key element of Québec's vocational and technical training effort. Because of the strong working relationship that it maintains with public and private organizations through its continuing education sector, it is also a key element in the training and upgrading of personnel in many companies.

Some characteristics of Québec's college education system

The Québec college education system has many interesting characteristics:

- it is based on the coexistence within the same institutions of pre-university and technical training programs;
- it involves the coexistence of public and private institutions;
- its institutions are designed to serve both French-speaking and English-speaking communities;
- it offers an educational setting in which both adolescent and adult students can study together.

Two types of programs

College level education is organized around two fundamental types of programs.

- The first are **state programs** which consist of courses developed by the Department of Higher Education. State programs are either two-year pre-university programs or three-year technical courses of study. Presently, Québec's colleges offer five pre-university and over 130 technical programs.
- The second are **institutional programs** and they are made up of courses designed by individual colleges and approved by the Department of Higher Education. Some 200 institutional programs have been approved by the Minister of Higher Education. In general, they are short term programs (10 to 15 courses) aimed at persons who have been out of the labor market or at workers requiring a highly specific skills upgrading.

State programs may be offered by any college level institution if certain criteria are met. Institutional programs are custom designed programs offered by one or two college level institutions to meet the needs of a specific group of customers.

Collège Édouard-Montpetit

With a total enrollment of a little more than 18,500 students and a faculty of 1,100 teachers assigned to twenty-seven departments, Collège Édouard-Montpetit is the largest French language college in the Province of Québec. Its student body consists of 4,000 full-time students in pre-university programs, 3,000 full-time students in technical programs, and 11,500 part-time students in continuing education.

Organizational structure

Collège Édouard-Montpetit has two main campuses, one located in the Montréal suburb of Longueuil and the other, the National Institute of Aeronautics (NIA), in the neighboring community of St. Hubert. Within these facilities, the college offers four pre-university and fifteen technical programs. It also has a Business Resource Center and a CAD/CAM Training Center both of which are located in a modern high-rise office building bordering the St. Lawrence River and immediately adjacent to the city of Montréal.

Community involvement

Collège Édouard-Montpetit, like many of its other sister institutions, has evolved into a true community college and provides a whole series of services to the immediate region. Among these, one can find:

- a sports center,
- a college library,
- dental hygiene and eye care clinics,
- an art gallery,
- a center for the performing arts,
- a repertory cinema,
- a day care center,
- special interest courses.

International projects

Collège Édouard-Montpetit has also been quite active in cooperative training and consulting activities with various international organizations and institutions. Over the years, it has developed an approach which stresses the importance of working in partnership with its clients so that they may acquire new expertise and, eventually act as consultants and resources for other organizations in their part of the world.

- In Cameroon, the college has been offering management and technical training at the Bonaberi Technical Institute.
- In Senegal, it has been working with Collège St. Michel to establish an applied computer science center and to improve management practices. In future African projects, Collège St. Michel will act as the college's partner in delivering expertise and management resources to other institutes of technology in Western Africa.
- In India, Collège Édouard-Montpetit is working in partnership with 12 technical colleges from three southern states (Tamil Nadu, Kerala and Karnataka) to improve their management systems and practices.
- In China, the college has been counseling Nanjing's technical college in competency based curriculum development. At the end of this project, Nanjing College will become the initiator of similar training projects in the province's other technical colleges.
- In South East Asia, the college has been acting as project manager for a program funded by the South East Asia Education Organization (SEAMEO) to establish technical training in heritage preservation.

- We also have also been working on projects in the Central African Republic, Vietnam, and Colombia.

Continuing Education at Collège Édouard-Montpetit

The Longueuil Campus and the NIA have distinct yet coordinated continuing education departments. The Longueuil Campus' Center for Continuing Education offers both credit and non-credit training. Among the former, we find pre-university and technical programs. The technical programs are divided into three sectors: business programs (such as Computer Assisted Financial Management, Real Estate Sales, and Management), high technology programs (such as Applied Micro-Data Processing and Office Technology), and standard technical programs (such as Denturology, Optical Dispensing Technology, Nursing, and Geriatric Care).

Among non-credit offerings, we find training components in management, human resource management, sales, telecommunications, computer sciences, international commerce, career management, professional development, multimedia production, etc. In 1992, the college added a new strategic business unit dealing with Total Quality Commitment to its existing Business Resource Center. This unit is affiliated with sixteen other organizations linked nationally through the newly created Canadian Network for Total Quality.

Three recent projects

In order to better illustrate our approach to training for business and industry, I would like to describe briefly three recent projects that highlight Collège Édouard-Montpetit's philosophy of placing the client's needs in the forefront and of networking with private and public sector organizations in order to meet their needs.

The CNTQ network

In 1991, in an effort to pull Canada out of its worst economic downturn since the Great Depression, the Prime Minister launched a national consultation known as the Prosperity Initiative. On October 28, 1992, the Minister of Industry, Science and Technology and International Trade, the Honorable Michael Wilson, announced the creation of the Canadian Network for Total Quality (CNTQ) in order to help Canadian business to become more competitive on international markets. As mentioned earlier, Collège Édouard-Montpetit is a charter member of this important network.

The Canadian Network for Total Quality (CNTQ) was designed to meet the needs of four different types of customers operating at all levels of the Canadian economy. They are: private business organizations, small, medium and large; public organizations such as municipal, provincial, and federal departments and agencies; para-public organizations such as hospitals, school boards, colleges, and universities; and community organizations such as interest groups and unions.

The CNTQ consists of five components operating at different levels and in different parts of the Canadian economy. Network organizations within the components act as leaders and facilitators and are delivery vehicles for services. The five types of components are the following: national, functional, provincial, community, and sectoral.

Our membership in the CNTQ has enabled us to engage in joint ventures with other members of the network and thus offer our customers unique and comprehensive services in total quality such as: total quality breakfasts, a 1-800 Quality Info line, a documentation and reference center, production of audiovisual material in TQC, and a catalogue of all TQC courses available through CNTQ members across Canada.

A competency based training program for Bell Canada's network managers

With 53,000 employees and annual revenues of 8 billion dollars, Bell Canada, which is part of the BCE conglomerate, is our nation's largest telecommunications company. As some of you may know, Bell Canada is now facing what AT&T was confronted with a few years ago: the loss of a monopolistic hold on its telephone system and strong competition in long distance and other telecommunications

services. To face these new challenges, Bell Canada decided to change from an efficient but rather bureaucratic organization to a more organic and adaptive structure and to train its management personnel in a decentralized customer oriented approach.

To meet this objective, Bell Québec, a division of Bell Canada, solicited our college's help in designing a competency based program to train its 600 network managers in such skills as customer and supplier relations, human resource management, information management, marketing, teamwork, dynamic processes for budgetary analysis, etc.

This program is innovative in many ways. It is one of the first competency based programs specifically designed for the private sector in Québec. Its success depends on a full and equal partnership involving the customer, Bell Canada, and our training center personnel in the process of defining course content and managing educational resources. Finally, we integrated into this project a system for the recognition of prior learning which will enable Bell's managers to move rapidly through the course.

<u>A province-wide training network</u>

Collège Édouard-Montpetit is also the initiator of a province-wide network of colleges called "Group C". Thirteen colleges in various regions of the province joined this strategic alliance to offer their customers a unique distribution network for micro-computer services and training. One of the first customers of this network was Québec's largest hardware and home renovation group, RONA-Dismat. Because of this network, RONA-Dismat was able to offer its 450 member merchants training in micro-telematics simultaneously in every region of the province. This project has generated a significant amount of interest in Québec's other large retailing firms. The success of this network is such that it is presently being extended to the neighboring Province of Ontario.

I would now like to introduce my colleague, Mr. Réjean Gauvreau, Director of Continuing Education at the National Institute of Aeronautics.

The Aerospace Industry in Québec

Involving more than 150 companies and 32,500 workers, Québec's share of the Canadian Aerospace Industry is a major component of the province's economy. With sales totalling 4.5 billion dollars in 1992, Québec's aerospace industry is responsible for about half of all such business in Canada. Sales in this industry have quadrupled in the last decade alone. Approximately 70% of all production is exported and two-thirds of all exports are sent to the United-States. The 675 million R & D dollars spent in 1992 represents the largest investment of its kind for any of Québec's industrial sectors.

More than 90% of all this activity is centered in the greater Montréal region. Among the larger companies involved in this sector, we can mention Rolls Royce of Canada, CAE Electronics, Pratt & Whitney of Canada, Bombardier's Canadair, Marconi Canada, Héroux, Bell Helicopter Textron, and Spar Aerospace. Montréal is also the host city for the headquarters of the International Civil Association Organization.

Thus, Greater Montréal is a major center for the Canadian Aerospace Industry and the National Institute of Aeronautics (NIA) is specifically designed to respond to its various training needs.

Aerospace training in Québec

While the larger aerospace companies offer a considerable amount of training to their personnel and clients, Québec's public education system also plays an important role. All five of Québec's major universities offer various engineering programs designed for the aviation sector. At the college level, the NIA is one of twelve Canadian institutes of technology offering training programs related to this field. A new high-school level training center should be completed within the coming year and it will be providing vocational training. Created by the industry in

1978, CAMAQ is a service organization designed to coordinate all of these training activities in Québec's aeronautics sector.

The National Institute of Aeronautics is the only Canadian college level institute to offer three full programs in aviation technology, namely, Avionics, Aircraft Maintenance and Aircraft Construction. With 1,350 full time students and a faculty of approximately 100 full-time teachers, the NIA is also the largest school of its kind in Canada. Housed in a modern building, it offers state-of-the-art equipment and facilities including laboratories, shops, specialized hangars, airplanes, helicopters, engine test cells, flight instruments, machine tools, and advanced robotics. In the next two years, 4.7 million dollars will be invested to renovate and enlarge existing facilities. In 1994, we are planning to introduce a co-op program that will enable students to alternate between regular academic semesters and paid training semesters in various firms. Such co-operative programs offer students hands-on experience while providing financial help to meet the increased cost of studying in the public school system. It also gives employers a meaningful context in which to assess potential candidates and to orient them toward company needs and work values.

The National Institute of Aeronautics offers courses in both French and English and has a long-standing tradition of sharing its facilities with universities, government agencies, and private companies for related training and research activities. In a recently announced project, the University of Sherbrooke's Engineering School, Bombardier's Canadair Division, and the NIA will pool their resources to study vibrations and noises that are transmitted from the fuselage to an airplane's cockpit and cabin. Direct benefits from this research project will be a better understanding of how soundproofing material affects the overall flight characteristics of an airplane.

Continuing Education at the NIA

The Continuing Education Department at the NIA offers both credit and non-credit programs in aeronautics. It also houses a large CAD/CAM Training Center that offers courses in structural, electrical, and mechanical engineering and is also used for training in architecture and civil engineering. Courses range from computer-aided design (CAD) to computer-aided drawing (CAD) and computer-aided manufacturing (CAM).

NIA's Continuing Education programs and services

The NIA's Continuing Education Department offers programs, specific courses, and other services to its customers. The Institute's three programs are Avionics, Aircraft Maintenance and Aircraft Construction. Courses are available in a variety of aeronautics related fields, CAD/CAM training, and specific aircraft maintenance certification. Services include consulting and quality accreditation.

As an example of the services that we are able to offer our customers, the NIA's Continuing Education Department has been hired by Hydro-Québec to conduct independent assessments of all private aircraft operators that fly Hydro-Québec personnel in outlying regions. This independent assessment has improved the quality of the services offered to Hydro-Québec and has quelled many an employee's fears about in-flight safety.

Thus the NIA's Continuing Education Department offers its customers ultra-modern facilities, a wide variety of courses and programs, a flexible approach to training, and customer designed services.

Notes for Mr. Bourgeois' concluding remarks

Concluding remarks

As it is most certainly the case with many American colleges, Québec institutions have mobilized to meet the growing challenges facing our post-secondary education system as we approach the start of a new millennium. It is possibly in the continuing education sector of community colleges that these challenges have been met with some of the most promising responses and innovations. Twenty-five years ago, a first quiet revolution transformed post-secondary education through the creation of Québec's public college network. In the last five years, a second quiet revolution has been in the making. It is not the result of a grand plan willed by politicians and designed by government bureaucrats. It is rather a bottom-up,

customer-driven venture that was initiated by the business training centers that many of our colleges' continuing education departments have established. The services that we offer are as varied as our customers, yet we all follow a few but important rules. We identify and evaluate our customers' needs. We involve them in as many steps of the planning and designing phases as possible. We create conditions that optimize the transfer of what is being learned to everyday practice. Finally, we constantly strive to maintain and improve the quality and the relevance of our services.

Faced with the diversity of training requirements, the constant proximity of the work place, both in time and in space, and the increasing need for accountability and profitability, continuing education departments across the province have rallied to meet these demands by introducing new practices in post-secondary education such as networking with other institutions, competency based training, recognition for prior learning, working for and with customers, creative management of physical and human resources, total quality commitment, and a genuine passion for the learning process.